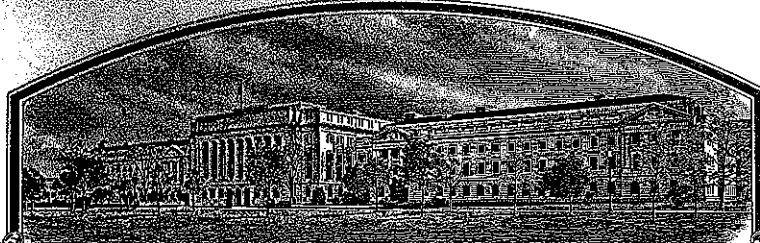


No.

200600284



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Montana Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE REQUIREMENTS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Yellowstone'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixth day of February, in the year two thousand and seven.

Attest:

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

Secretary of Agriculture




U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Montana Agricultural Experiment Station		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME MT00159		3. VARIETY NAME Yellowstone	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 202 Linfield Hall; Montana State University Bozeman, MT 59717		5. TELEPHONE (include area code) 406-994-3681		<b>FOR OFFICIAL USE ONLY</b> <b>PVPO NUMBER</b> <b>200600.284</b> <b>FILING DATE</b> <b>September 5, 2006</b>	
		6. FAX (include area code) 406-994-6579			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) State Experiment Station		8. IF INCORPORATED, GIVE STATE OF INCORPORATION			
9. DATE OF INCORPORATION					
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Philip L. Bruckner Dep. of Plant Sciences & Plant Pathology; Montana State Univ. Bozeman, MT 59717				<b>FILING AND EXAMINATION FEES:</b> <b>\$ 4382</b> <b>DATE 9/5/06</b> <b>CERTIFICATION FEE:</b> <b>\$ 768.00</b> <b>DATE 12/6/2006</b>	
11. TELEPHONE (include area code) 406-994-5127		12. FAX (include area code) 406-994-1848		13. E-MAIL bruckner@montana.edu	
14. CROP KIND (Common Name) Wheat, common		16. FAMILY NAME (Botanical) Triticaceae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Triticum aestivum		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23)	
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)					
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER		
NAME (Please print or type) Jeffrey Jacobsen			NAME (Please print or type)		
CAPACITY OR TITLE Dean & Director, COA/AES		DATE 8/30/06		CAPACITY OR TITLE	
				DATE	

(See reverse for instructions and information collection burden statement)

**GENERAL INSTRUCTIONS:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

**Plant Variety Protection Office**

Telephone: (301) 504-5518

FAX: (301) 504-5291

General E-mail: [PVPOmail@usda.gov](mailto:PVPOmail@usda.gov)

Homepage: <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

**SPECIFIC INSTRUCTIONS:**

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. <http://www.ams.usda.gov/lsg/seed.htm>.

**ITEM**

- 19a. Give:
- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
  - (2) the details of subsequent stages of selection and multiplication;
  - (3) evidence of uniformity and stability; and
  - (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
  - (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

**22. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

**23. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

U.S. - September 7, 2005

**24. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

## Exhibit A

## Origin &amp; Breeding History of Yellowstone

'Yellowstone', a hard red winter wheat (*Triticum aestivum* L.) was developed by the Montana Agricultural Experiment Station and allocated to Montana seedgrowers in September 2005. Yellowstone originated from crosses 93X542 (Promontory/Judith) and 93X543 (Judith-dwf/Promontory) made in 1993. The  $F_1$  populations were grown in the field in 1994. A composite of  $F_2$  seed of the two closely related populations was made and planted as an  $F_2$  space-planted population (93X542c) at Fort Ellis in 1995. The  $F_3$  bulk population was planted at Sidney in 1996. Survival of  $F_3$  populations at Sidney in 1996 was extremely low and only seven plants were harvested from 93X542c. In 1997, the seven  $F_3$ -derived  $F_4$  plant rows were grown in Bozeman and 93X542cC6 was selected based on visual criteria for uniformity, productivity, and acceptable agronomic type and harvested in bulk after reselection of seven individual heads from the row.  $F_5$  reselection headrow 93X542cC6-6 was selected at Fort Ellis in 1998 and harvested in bulk. 93X542cC6-6 was subsequently tested in the 1999 Single Rep Observation Nursery B (SROB) grown at Bozeman and Fort Ellis. In 2000, 93X542cC6-6 was designated MT00159 and tested in the Preliminary B trial at four locations (2 loc-harvested). In 2001, MT00159 was tested in the MT Advanced trial at six locations (5 loc-harvested). From 2002 through 2005, MT00159 was evaluated in the Montana Intrastate trial planted at eight locations (total 30 LY) and from 2003 through 2005, MT00159 was tested in Montana Off-station nursery planted at 12-14 on-farm locations (total 38 LY). Quality has been evaluated in multi-location Montana trials since 2000. In 2004, MT00159 was an entry in the USDA Northern Regional Performance Nursery (NRPN) planted at approximately 20 sites across the Northern Great Plains.

Breeder seed of Yellowstone was developed in 2002 and 2003 using a head row/line row purification scheme. In 2002, 99  $F_{4.9}$  headrows were evaluated for height, maturity, and phenotypic uniformity at Fort Ellis. Line rows (84) were grown in Bozeman in 2003 and further evaluated for uniformity. Fifty-six line rows with uniform appearance were selected and harvested in bulk by plot combine. Breeder seed ( $F_{4.11}$ ) was produced in 2004 at the Post farm in Bozeman. Plants rogued from the breeder seed increase included variant plants taller in height, awnless, and red chaffed (16, 2, 67 in 1.56A, <0.1% total variants). Foundation seed was produced at Williston, ND, Sidney, MT, and Moccasin, MT in 2005.

Yellowstone in an  $F_4$  derived line. The cultivar has been shown to be true-breeding across multiple generations and environments. Yellowstone has been observed to be stable and uniform across multiple locations from 1998 to 2006 (nine generations). Yellowstone contains a taller, red-chaffed variant at a frequency of <1 per 10,000 plants and a taller, white-chaffed variant at a frequency of <2 per 10,000 plants.

Foundation seed of Yellowstone will be maintained by the Montana Agricultural Experiment Station, Montana State University, Bozeman, MT 59717.

**Exhibit B - revised****Statement of Distinctness**

Yellowstone is a high-yielding, conventional-height hard red winter wheat cultivar with medium test weight and protein. Yellowstone is most similar to parental cultivar, Promontory. Both Yellowstone and Promontory are high yielding, medium in maturity, and of conventional height. However, Yellowstone has white glumes and chaff while Promontory has bronze glumes and chaff. In addition, Yellowstone has superior bake water absorption in bread baking evaluations (AACC Method 10-10B) compared to Promontory (73.6% vs. 71.1%,  $LSD_{0.05}=1.3\%$ , 2003-2005,  $n=12$ ).

Table B1. Bake water absorption of Yellowstone and Promontory winter wheat cultivars in bread baking evaluations of yield trials at four Montana locations from 2003 to 2005 ( $n=12$ ).

Location & year	Yellowstone	Promontory	Std. deviation
	----- % -----		
Bozeman, 2003	71.1	70.4	2.0
Havre, 2003	74.9	72.1	1.6
Moccasin, 2003	79.8	73.0	2.8
Conrad, 2003	75.2	72.2	2.8
Bozeman, 2004	70.4	68.5	1.7
Havre, 2004	74.0	70.2	2.3
Moccasin, 2004	75.5	72.7	1.9
Conrad, 2004	71.2	70.0	1.6
Bozeman, 2005	72.2	70.4	1.9
Havre, 2005	74.4	75.8	2.8
Huntley, 2005	73.1	69.1	2.3
Conrad, 2005	71.5	68.4	1.9
Mean	73.6	71.1	$LSD_{0.05}=1.3$

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved OMB NO 0581-0055

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY  
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S) <b>Montana Agricultural Exp. Stn.</b>	TEMPORARY OR EXPERIMENTAL DESIGNATION <b>MT00159</b>	VARIETY NAME <b>Yellowstone</b>
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) <b>202 Linfield Hall Montana State University Bozeman, MT 59717</b>		FOR OFFICIAL USE ONLY PVPO NUMBER <b>200600284</b>

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.,    or   ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: \_\_\_\_\_ Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

- 1 = Common  
2 = Durum  
3 = Club  
4 = Other (Specify) \_\_\_\_\_

2. VERNALIZATION:

- 1 = Spring  
2 = Winter  
3 = Other (Specify) \_\_\_\_\_

3. COLEOPTILE ANTHOCYANIN:

- 1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

- 1 = Prostrate 2 = Semi-Erect 3 = Erect

5. PLANT COLOR: (boot stage)

- 1 = Yellow-Green  
2 = Green  
3 = Blue-Green

6. FLAG LEAF: (boot stage)

- 1 = Erect 2 = Recurved  
 1 = Not Twisted 2 = Twisted  
 1 = Wax Absent 2 = Wax Present

7. EAR EMERGENCE:

- Number of Days (Average)  
  Number of Days Earlier Than  
Same As  
  Number of Days Later Than

\* **Neeley, Pryor**  
\* **BigSky, Genou, NuWest**  
\* **Promontory, CDC Falcon**  
\*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

8. ANTHOR COLOR:

- 1 = Yellow 2 = Purple

## 9. PLANT HEIGHT: (from soil to top of head, excluding awns)

085

cm (Average)

09

cm Taller Than

CDC Falcon

Same As

Promontory, Genou

08

cm Shorter Than

Big Sky, Rocky

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## 10. STEM:

## A. ANTHOCYANIN

1

1 = Absent 2 = Present

## B. WAXY BLOOM

1

1 = Absent 2 = Present

## C. HAIRINESS (last internode of rachis)

2

1 = Absent 2 = Present

## D. INTERNODE

1

1 = Hollow 2 = Semi-Solid 3 = Solid

4

Number of Nodes

## E. PEDUNCLE

1

1 = Erect 2 = Recurved 3 = Semi-Erect

17

cm Length

## F. AURICLE

1

Anthocyanin: 1 = Absent 2 = Present

1

Hair: 1 = Absent 2 = Present

## 11. HEAD: (At Maturity)

## A. DENSITY

2

1 = Lax  
2 = Middense (Laxidense)  
3 = Dense

## B. SHAPE

1

1 = Tapering  
2 = Strap  
3 = Clavate  
4 = Other (Specify)

## C. CURVATURE

2

1 = Erect  
2 = Inclined  
3 = Recurved

## D. AWNEDNESS

4

1 = Awnless  
2 = Apically Awnletted  
3 = Awnletted  
4 = Awned

## 12. GLUMES: (At Maturity)

## A. COLOR

1

1 = White  
2 = Tan  
3 = Other (Specify)

## B. SHOULDER

1

1 = Wanting 2 = Oblique  
3 = Rounded 4 = Square  
5 = Elevated 6 = Apiculate  
7 = Other (Specify)

## C. SHOULDER WIDTH

1

1 = Narrow  
2 = Medium  
3 = Wide

## D. BEAK

3

1 = Obtuse  
2 = Acute  
3 = Acuminate

## E. BEAK WIDTH

1

1 = Narrow  
2 = Medium  
3 = Wide

## F. GLUME LENGTH

2

1 = Short (ca. 7 mm)  
2 = Medium (ca. 8 mm)  
3 = Long (ca. 9 mm)

## G. WIDTH

2

1 = Narrow (ca. 3 mm)  
2 = Medium (ca. 3.5 mm)  
3 = Wide (ca. 4 mm)

## H. PUBESCENCE

1

1 = Not Present  
2 = Present

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## 13. SEED:

## A. SHAPE

- ☒ 1 = Ovate  
2 = Oval  
3 = Elliptical

## B. CHEEK

- ☒ 1 = Rounded  
2 = Angular

## C. BRUSH

- ☒ 2 1 = Short  
2 = Medium  
3 = Long
- ☒ 2 1 = Not Collared  
2 = Collared

## D. CREASE

- ☒ 1 1 = Width 60% or less of Kernel  
2 = Width 80% or less of Kernel  
3 = Width Nearly as Wide as Kernel

- ☒ 1 1 = Depth 20% or less of Kernel  
2 = Depth 35% or less of Kernel  
3 = Depth 50% or less of Kernel

## E. COLOR

- ☒ 3 1 = White  
2 = Amber  
3 = Red  
4 = Other (Specify) \_\_\_\_\_

## F. TEXTURE

- ☒ 1 1 = Hard  
2 = Soft  
3 = Other (Specify) \_\_\_\_\_

## G. PHENOL REACTION (See Instructions)

- ☒ 0 1 = Ivory 4 = Dark Brown  
2 = Fawn 5 = Black  
3 = Light Brown

Not evaluated

## H. SEED WEIGHT

- ☒ 33 g/1000 Seed (whole number only)

## I. GERM SIZE

- ☒ 3 1 = Small  
2 = Midsize  
3 = Large

## 14. DISEASE: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> 1 Stem Rust ( <i>Puccinia graminis</i> f. sp. <i>tritici</i> ) | <input checked="" type="checkbox"/> 1 Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> )                      |
| <input checked="" type="checkbox"/> 2 Stripe Rust ( <i>Puccinia striiformis</i> )                  | <input checked="" type="checkbox"/> 0 Loose Smut ( <i>Ustilago tritici</i> )   |
| <input checked="" type="checkbox"/> 0 Tan Spot ( <i>Pyrenophora tritici-repentis</i> )             | <input checked="" type="checkbox"/> 0 Flag Smut ( <i>Urocystis agropyri</i> )  |
| <input checked="" type="checkbox"/> 0 Halo Spot ( <i>Selenophoma donacis</i> )                     | <input checked="" type="checkbox"/> 0 Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )                        |
| <input checked="" type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)                       | <input checked="" type="checkbox"/> 3 Dwarf Bunt ( <i>Tilletia controversa</i> )   |
| <input checked="" type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)               | <input checked="" type="checkbox"/> 0 Kamal Bunt ( <i>Tilletia indica</i> )  |
| <input checked="" type="checkbox"/> 0 <i>Septoria tritici</i> (Speckled Leaf Blotch)               | <input checked="" type="checkbox"/> 0 Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )                  |
| <input checked="" type="checkbox"/> 0 Scab ( <i>Fusarium</i> spp.)                                 | <input checked="" type="checkbox"/> 0 "Snow Molds"   |
| <input checked="" type="checkbox"/> 0 "Black Point" (Kernel Smudge)                                | <input checked="" type="checkbox"/> 0 Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input checked="" type="checkbox"/> 0 Barley Yellow Dwarf Virus (BYDV)                             | <input checked="" type="checkbox"/> 0 Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                 |
| <input checked="" type="checkbox"/> 1 Soilborne Mosaic Virus (SBMV)                                | <input checked="" type="checkbox"/> 0 Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> )               |
| <input checked="" type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus                   | <input checked="" type="checkbox"/> 0 Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )          |
| <input checked="" type="checkbox"/> 0 Wheat Streak Mosaic Virus (WSMV)                             | <input type="checkbox"/> Other (Specify) _____   |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____   |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____   |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____   |

## 15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- ☒ 1 Hessian Fly (*Mayetiola destructor*) GP
- ☒ 1 Stem Sawfly (*Cephus* spp.)
- ☒ 0 Cereal Leaf Beetle (*Oulema melanopa*)
- ☐ Other (Specify) \_\_\_\_\_
- ☐ Other (Specify) \_\_\_\_\_
- ☐ Other (Specify) \_\_\_\_\_



15. INSECT: (continued) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

- ☒ Russian Aphid (*Diuraphis noxia*)  
☐ Greenbug (*Schizaphis graminum*)  
☐ Aphids

PLEASE SPECIFY BIOTYPE (Where Needed)

- ☐ Other (Specify) \_\_\_\_\_  
☐ Other (Specify) \_\_\_\_\_  
☐ Other (Specify) \_\_\_\_\_

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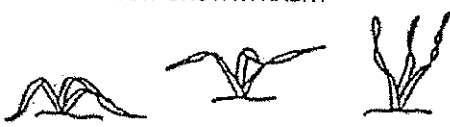

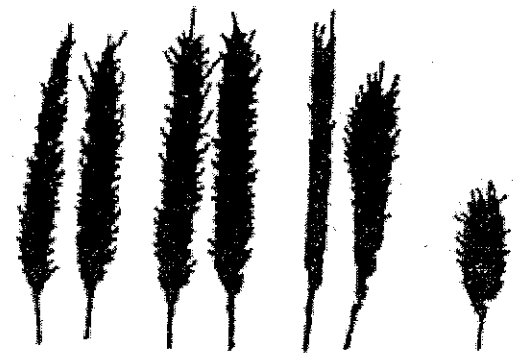

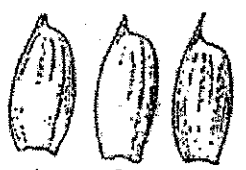
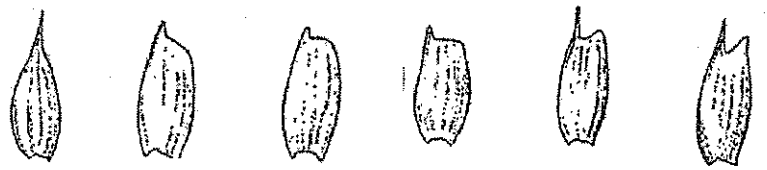
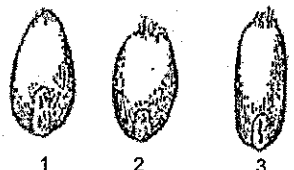

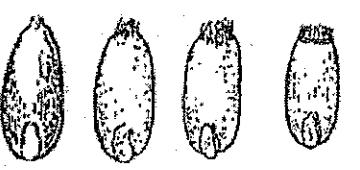
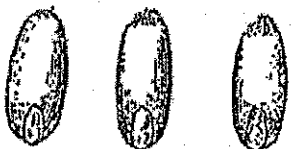



16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

# WHEAT DESCRIPTOR ILLUSTRATIONS

Exhibit C (Wheat)

Section Numbers Correspond to the Numbers of the Sections on the Form

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<p>4. EARLY PLANT GROWTH HABIT:</p>  <p>1 Prostrate      2 Intermediate      3 Erect</p>	<p>10. (D.) STEM INTERNODE X-SECTION:</p>  <p>1 Hollow      2 Semi-solid      3 Solid</p>	<p>11. (B.) SPIKE SHAPE:</p>  <p>1 Tapering      2 Oblong      3 Clavate      4 Elliptical</p>	
<p>11. (D.) AWNEDNESS:</p>  <p>1 Awnless      2 Apically Awnleted      3 Awnleted      4 Awned</p>	<p>12. (D.) BEAK SHAPE:</p>  <p>1 Obtuse      2 Acute      3 Acuminate</p>		
<p>12. (C.) SHOULDER SHAPE:</p>  <p>1 Wanting      2 Oblique      3 Rounded      4 Square      5 Elevated      6 Apiculate</p>			
<p>13. (A.) SEED SHAPE:</p>  <p>1 Ovate      2 Oval      3 Elliptical</p>	<p>13. (B.) CHEEK SHAPE:</p>  <p>1 Rounded      2 Angular</p>	<p>13. (C.) BRUSH SIZE</p>  <p>1 Small      2 Midsized      3 Large      4 Collared</p>	<p>13. (C.) BRUSH HAIR LENGTH:</p>  <p>1 Short      2 Medium      3 Long</p>
<p>13. (I.) GERM (EMBRYO) SIZE:</p>  <p>1 Small      2 Midsized      3 Large</p>	<p>13. (D.) SEED CREASE WIDTH:</p>  <p>1 Narrow      2 Mid-wide      3 Wide</p>	<p>13. (D.) SEED CREASE DEPTH:</p>  <p>1 Shallow      2 Mid-Deep      3 Deep</p>	

**Additional Description of Yellowstone Wheat**

Yellowstone is an awned, white-chaffed, medium maturity, conventional height hard red winter wheat with good winter hardiness and high yield potential in Montana.

Yellowstone was released based on high yield potential and superior winter survival in rain-fed environments of Montana. Mean grain yield and agronomic characteristics of Yellowstone in trials conducted from 2003 to 2005 is shown in Table D1. Mean milling and baking data for Yellowstone and check cultivars from 2003 to 2005 is shown in Table D2.

## Supplement to Exhibit D

Table D1. Mean grain yield and agronomic characteristics of Yellowstone and check cultivars in multiple Montana field trials from 2003 to 2005. Winter survival and lodging data collected only in environments with differential expression of the trait.

Cultivar	Grain yield	Test weight	Heading date	Plant height	Winter survival	Lodging	Grain protein	Coleoptile length
	bu/ac	lb/bu	days <sup>1</sup>	inches	%	0-9 scale	%	inch
Yellowstone	56.0	58.3	165.0	33.6	60.1	0.1	13.0	2.7
Neeley	52.2	58.4	166.2	35.2	54.5	0.5	13.2	3.3
Promontory	53.3	60.4	163.6	32.5	46.7	0.2	12.6	2.6
Pryor	55.7	58.6	165.9	31.2	55.1	0.1	12.7	2.7
CDC Falcon	51.7	58.8	163.6	30.0	62.6	0	13.0	2.7
LSD <sub>0.05</sub>	2.3	0.5	0.7	0.8	7.5	ns <sup>2</sup>	0.3	0.2
# enviro.	38	37	29	30	10	4	37	4

<sup>1</sup> Days from January 1.

<sup>2</sup> Non-significant difference among cultivars by F-test in ANOV.

Table D2. Mean milling and baking characteristics of Yellowstone and check cultivars in multiple Montana field trials from 2003 to 2005.

Cultivar	Grain hardness	Flour yield	Flour ash	Bake mix time	Bake water absorption	Loaf volume
		%	%	min	%	cc
Yellowstone	80.2	67.8	0.39	11.8	73.6	1091
Neeley	75.2	66.1	0.37	7.5	71.9	1025
Promontory	77.6	68.4	0.37	5.9	71.1	1047
Pryor	77.9	67.2	0.39	4.5	69.6	1010
CDC Falcon	70.7	64.8	0.40	7.6	70.6	1054
LSD <sub>0.05</sub>	3.0	0.9	0.02	1.3	1.3	39
# environments	12	12	12	12	12	12

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S)  Montana Agricultural Experiment Station	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  MT00159	3. VARIETY NAME  Yellowstone
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  202 Linfield Hall Montana State University Bozeman, MT 59717	5. TELEPHONE (Include area code)  (406) 994-3681	6. FAX (Include area code)  (406) 994-6579
	7. PVPO NUMBER  200500284	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.



YES



NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.



YES



NO

10. Is the applicant the original owner?



YES



NO

If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?



YES



NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?



YES



NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705**

**EXHIBIT F  
DECLARATION REGARDING DEPOSIT**

NAME OF OWNER (S) Montana Agricultural Experiment Station	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 202 Linfield Hall Montana State University Bozeman, MT 59717	TEMPORARY OR EXPERIMENTAL DESIGNATION MT00159
NAME OF OWNER REPRESENTATIVE (S) Phil L. Bruckner	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 202 Linfield Hall Montana State University Bozeman, MT 59717	VARIETY NAME Yellowstone  FOR OFFICIAL USE ONLY  PVPO NUMBER 200600284

200600284

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature



Date

